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## II. DIAGNOSES AND NOTES RELATING TO AMERICAN EUPATORIEAE.

BY B. L. ROBINSON.

*Ophryosporus venosissimus*, n. comb. *Eupatorium venosissimum* Rusby, Mem. Torr. Bot. Club, vi. 57 (1896). The anthers of this species, even when examined with a compound microscope, show no vestige of an apical appendage. In other respects, such as the few subequal scales of the involucre, the species is in agreement with *Ophryosporus*. In habit and foliage it somewhat resembles *O. Cumingii*, Benth.

THE GENUS *AGERATELLA* seems never to have received a formal or detailed characterization. It was originally founded (without generic description) upon two plants which Dr. Gray regarded as varieties of a single species. Hoffmann, in Engl. & Prantl, Nat. Pflanzenf. iv. Abt. 5, p. 137 (1890), also regarded the genus as monotypic and gave only a comparative, 2-line description of it. With the more abundant material now at hand it is clear that there are two distinct species. The generic characters and specific distinctions may be recorded as follows:—

*AGERATELLA*, Gray. Capitula homogama, cylindrica vel anguste campanulata, ca. 15-flora. Involucris squamæ valde inæquales, in seriebus 5 verticalibus imbricatæ, exterioribus brevibus ovatis, interioribus longioribus lanceolato-oblongis, intimis linearibus angustissimis deciduis paleiformibus. Receptaculum hemisphaericum, nudum, parvum. Corollæ anguste tubulosæ sine ullis faucibus distinctis summa parte plus minusve contractæ, externe sparse glandulosæ, dentibus limbi 5 anguste oblongis brevissimis erectis. Antherae oblongæ, basi obtusæ, connectivo apice incrassato truncato vel in appendicem brevem obtusam producto. Achænia 5-gona, prismatica, deorsum leviter angustata, in costis sursum hispidula. Pappi paleæ ovatae vel lanceolatae, translucidae, erosae, costa unica hispidula in aristam longam purpurascentem producta. Styli rami elongati, leviter clavellati. — Gray ex Wats. Proc. Am. Acad. xxii. 419, 420 (1887); Hoffm. in Engl. & Prantl, Nat. Pflanzenf. iv. Abt. 5, p. 137 (1890). — Frutices vel suffrutices graciles, humiles, ramosi. Folia parva, opposita vel alterna, ovata vel oblonga vel linearia. Capitula numerosa, mediocra, racemosa vel paniculata.

*A. MICROPHYLLA*, Gray, l. c. Fruticosa copiose paniculatim ramosa; ramis gracillimis subteretibus decumbentibus puberulis apice nudiusculis

in pedunculos gracillimos ca. 6 cm. longos laxe spicato-pluricapitados productis; foliis subsessilibus oppositis late ovatis vel ovato-rhomboides crenato-serratis obtusiusculis 6–10 mm. longis 4–7 mm. latis utrinque puberulis et glanduloso-atomiferis; pedicellis ad 3 mm. longis; involucri anguste campanulati squamis viridibus vel brunnescentibus dorso puberulis, exterioribus acutis, interioribus obtusiusculis vel apice rotundatis; capitulis ca. 17-floris. — *Ageratum microphyllum*, Sch. Bip. in Seemann, Bot. Herald, 298 (1856). *Decachaeta Seemanni*, Benth. & Hook. f. Gen. ii. 239 (1873). *D. Seemanni*, Hemsl. Biol. Cent.-Am. Bot. ii. 78, t. 42 (1880). *Ageratella microphylla*, var. *Seemanni*, Gray, l. c. — Northwestern Mexico, *Seemann*, no. 2043 (co-type, in hb. Gr.).

**A. Palmeri**, n. sp. Suffruticosa erecta; caulibus saepius plurimis 5–6 dm. altis teretibus pilis brevissimis crispis griseo-puberulis foliosis; foliis alternis lanceolatis vel lineari-oblongis obtusiusculis vel apice rotundatis inciso-serratis vel integris 1–3-nerviis 12–20 mm. longis griseo-puberulis et obscure atomiferis; inflorescentia elongata angusta folioso-bracteata, ramulis gracilibus ad 4 (rarius 10) cm. longis adscendentibus 1–6 (rarius 15)-capitatis; squamis involucri subcylindrici vel anguste campanulati viridibus striatis, exterioribus brevibus plus minusve griseo-puberulis capitulis ca. 13-floris. — *A. microphylla*, var. *Palmeri*, Gray, l. c. — Río Blanco, Jalisco, Mexico, *Palmer*, no. 537 (type, in hb. Gr.); on dry porphyritic hills near Guadalajara, *Pringle*, no. 1815; Sierra de San Esteban, *Pringle*, nos. 9840, 11,480. This species is readily distinguished from the other by its narrow alternate leaves and different inflorescence.

**Oxylobus adscendens**, ROBINSON & GREENMAN, n. comb. *Ageratum adscendens*, Sch. Bip. ex Benth. & Hook. f. Gen. ii. 242 (1873), nomen subnudum; Hemsl. Biol. Cent.-Am. Bot. ii. 80 (1881), where first described; Klatt, Leopoldina, xx. 75 (1884). This species, both from habit and technical characters, should be placed in *Oxylobus*, Moc., a marked group of three or four ageratoid *Eupatorieae* regarded as a genus by Mociño, as a subgenus of *Phania* by De Candolle, Prod. v. 115 (1836), as aberrant species of *Ageratum* by Bentham and Hooker f., l. c., but restored to generic rank by Dr. Gray, Proc. Am. Acad. xv. 25–26 (1879), who, however, failed to include the species here mentioned. Dr. Gray's two binomials, *O. arbutifolius* and *O. glanduliferus*, appear to have been entirely overlooked by the compilers of the Index Kewensis. In this connection it may be worth while to call attention to a probable error by which Mr. Hemsley (Biol. Cent.-Am. Bot. ii. 82) extends the range of the latter of these two species to "Venezuela, &c., Fendler,

1155." It seems more than likely that the specimen referred to was Linden's 1155 from Southern Mexico, which is, in fact, *O. glanduliferus*, while Fendler's 1155 is, at least in the Gray Herbarium, a piperaceous plant.

**Fleischmannia Langlassei**, n. sp. Suffruticosa decumbens plus minusve ramosa 2 dm. vel ultra alta; caulibus teretibus griseo-brunneis, ramulis leviter angulatis infra glabratis supra glanduloso-pilosis foliosis; foliis alternis graciliter petiolatis ovato-lanceolatis inciso-serratis vel etiam profunde trilobatis tenuibus 1–2.5 cm. longis 5–12 mm. latis utrinque viridibus subconcoloribus glabratis, petiolo 5–14 mm. longo juventate glanduloso-pilosiusculo maturitate omnino glabrato; capitibus multifloris longissime pedunculatis, pedunculis 1–4 in apicibus ramorum dispositis gracilibus plus minusve flexuosis obscure glanduloso-pilosiusculis vel in maturitate glabris; involucrio turbinato-campanulato 8–14 mm. diametro squamis lanceolato-linearibus acutissimis striatis valde inaequalibus multiseriatim imbricatis glaberrimis purpurascensibus; receptaculo leviter convexo nudo; corollis albidis anguste tubulosis glabris 4.5 mm. longis sub limbo brevissimo erecto 5-dentato saepe leviter constricto; styli ramis longe exsertis conspicuis purpureo-roseis; achaeniis linearibus in angulis 5 sursum hispidis 1.7 mm. longis basi callosis, setis pappi 5–6 purpureis capillaribus sed firmiusculis 4 mm. longis. — Moist rocks, Arroyo de Barabas, Michoacan or Guerrero, Mexico, alt. 1000 m., 11 March, 1898, *E. Langlasse*, no. 27 (type, in hb. Gr.). Vernacular name, *clavellilo*. In inflorescence, flowers, and achenes this species is much like *F. Schaffneri*, Gray, but it differs conspicuously in its chiefly undivided very thin and completely glabrate leaves, as well as in its glabrate petioles and peduncles. In *F. Schaffneri* the leaves, which are of firm texture and somewhat grayish green with a fine permanent glandular puberulence, are regularly cleft nearly to the base into three linear lobes.

**Piptothrix aegiroides**, n. sp. Erecta; caule 6–12 dm. alto subtereti purpureofolioso simplici glaberrimo; foliis oppositis graciliter petiolatis ovato-deltoides acuminatis serrato-dentatis vel crenatis firmiusculis utrinque subreticulatis supra viridibus glabris subtus pallidioribus in nerviis 3 pubescentibus 6 cm. longis 5 cm. latis, petiolo purpureo supra subsulcato 1.5–3 cm. longo; capitulis ca. 20-floris numerosissimis in corymbo planiusculo dispositis, pedicellis 5 mm. longis bracteolatis glabris; involucri campanulati squamis ca. 12 subaequalibus sub-biseriatim imbricatis oblongis viridibus vel apice obtuso eroso purpurascensibus 3 mm. longis; receptaculo paleaceo, paleis linearibus obtusis; corollis albis tubulosis glabris tubo proprio gracili saepe curvato ca. 1.3 mm.

longo in fauces longos subcylindricos leviter gradatimque ampliato, dentibus limbi ovato-oblongis obtusis erectis vel plus minusve patentibus; antheris apice longe appendiculatis basi rotundatis; filamentis glabris; achaeniis atrofuscis prismaticis valde 5-costatis glabris saepius leviter curvatis basi albocallosis 1.7 mm. longis; pappi setis paucis inaequalibus sursum scabridis purpurascensibus ca. 2 mm. longis caducissimis. — Under oaks, cool slopes of mountains above Etzatlan, Jalisco, Mexico, 24 October, 1904, *C. G. Pringle*, no. 8859 (type, in hb. Gr.)

*Eupatorium chrysostylum*, n. sp. Herbaceum e radice lignosa suberectum 2–3 dm. altum, caulibus compluribus flexuosis subsimplicibus mollissime albo-lanatis, pilis perlongis tenuibus patentissimis plus minusve viscosis; foliis oppositis petiolatis deltoideo-ovatis acutis grosse et argute dentatis ca. 3 cm. longis 2.5 cm. latis tenuibus concoloribus utrinque viridibus sed a grisea pubescentia tectis; petiolo 1–1.5 cm. longo patente tomentoso; paniculis rotundatis compactis multicapitulatis terminalibus vel subterminalibus, pedicellis 3–7 mm. longis viscoso-tomentosis; capitulis ca. 30-floris 12 mm. longis, involucrio turbinato-cylindrico, squamis lanceolato-linearibus viridibus striato-nerviis valde inaequalibus multiseriatim imbricatis adpressis acutissimis dorso margineque griseo-pubescentibus; corollis glabris flavescentibus vel virescentibus longe tubulosis sursum sub limbo brevi 5-dentato erecto vel modice patente leviter angustatis ca. 5 mm. longis; antheris linearibus apice appendice ovato-lanceolata munitis; stylis clavatis valde exsertis aureis conspicuis; achaeniis gracilibus 4 mm. longis nigris pubescentibus deorsum leviter angustatis basi callosis; pappi setis ca. 25 vix barbellatis valde inaequalibus albis. — Dry ledges, rocky hills near Chihuahua, Mexico, 17 April, 1885, *C. G. Pringle*, no. 135 (type, in hb. Gr.) This plant, although distributed as *E. Parryi*, Gray, differs from that species conspicuously in its far more copious and less glandular pubescence, its more sharply toothed leaves, which are truncate rather than cordate at the base, and in its dense inflorescence, the pedicels in *E. Parryi* being two to four times as long and the heads relatively few.

*Eupatorium leucoderme*, n. sp. Fruticosum; ramis teretibus flexuosis albidis laevibus, ramulis fulvo-tomentellis; foliis oppositis oblongo-lanceolatis tenuibus utrinque viridibus 3-nerviis serratis vel subintegris 5–7 cm. longis 2–2.5 cm. latis utrinque praecipue in nerviis fulvo-puberulis subtus crebre nigro-punctatis apice attenuato-acuminatis basi obtusis vel rotundatis; nerviis a venulis transversariis quam eae Miconiae connexis; petiolo ca. 6 mm. longo gracili flexuoso fulvo-tomentello; paniculis lateralibus oppositirameis dense corymboso-thyrsoideis 6–9 cm. dia-

metro; capitulis ca. 6-floris sessilibus in glomerulis rotundatis congestis; squamis involucri lanceolato-linearibus acuminatis valde inaequalibus sub-uniseriatis dorso fulvo-puberulis; corollis albis anguste tubulosis 4 mm. longis, limbo resinoso-punctato leviter ampliato brevissime 5-dentato; achaeniis prismaticis vix 3 mm. longis; setis pappi ca. 40 barbellatis 3.5 mm. longis sordido-albis; antheris breviter sed distincte in apice appendiculatis. — Sandy soil, Chuta, Michoacan or Guerrero, Mexico. alt. 25 m., 20 June, 1898, *E. Langlassé*, no. 183 (type, in hb. Gr.). In habit this species much resembles *E. albicaule*, Sch. Bip., but differs in its thin punctate leaves, acuminate involucreal scales, etc.

**Eupatorium Lozanoanum**, n. sp. Fruticosum oppositifolium glaberrimum; ramis striatulis teretibus fuscescentibus, ramulis teretibus viridibus foliatis, internodiis 2–9 cm. longis; foliis oppositis petiolatis ovato-lanceolatis falcatis caudato-acuminatis cuspidato-serratis basi inaequali obtusis vel rotundatis supra basin trinerviis sed etiam prope basin nerviis duabus parvis brevibus marginalibus plus minusve obscuris munitis utrinque laete viridibus sublucidis pulcherrime pellucide punctatis reticulatisque 8–10 cm. longis 2–3 cm. latis; paniculis terminalibus laxis trichotomis 5–10 cm. diametro pyramidalibus 60–80-capitatis, ramulis gracilibus saepe divaricatis plus minusve puberulis capitula subsessilia ad apicem gerentibus; capitulis cylindricis 1 cm. longis 3 mm. diametro 4-floris; involucri squamis paucis (ca. 8) valde inaequalibus viridibus striatulis convexis apice obtusiusculis, exterioribus minimis ovatis, interioribus oblongis; corollis viridi-albis tubulosis 5 mm. longis glabris, tubo proprio faucibus vix ampliatis subaequantibus, dentibus limbi 5 brevibus triangularibus patentibus; antheris apice longe appendiculatis; achaeniis prismaticis deorsum angustatis 3.7 mm. longis in costis 5 hispidulis inter costis obscure puberulis; pappi setis ca. 40 albis sursum-barbellatis, plurimis sublongioribus corollae superantibus prope apicem subdilatatis; styli ramis rectiusculis longissimis vix clavatis flavido-brunneis. — In the deep barranca below Trinidad Iron Works, Hidalgo, Mexico, 12 July, 1904, *C. G. Pringle*, no. 8942 (type, in hb. Gr.). Dedicated to Mr. Filemón L. Lozano, the faithful and efficient assistant of Mr. Pringle in his field work.

**Eupatorium petraeum**, n. sp. Frutex 1.5 m. altus, caule solitario tereti purpureomaculato minute puberulo; foliis alternis late ovatis vel suborbicularibus acutiusculis angulatis vel sublobatis undulato-dentatis petiolatis supra basin 3–(5)-nerviis utrinque reticulatis in nerviis puberulis 10 cm. longis 9 cm. latis, petiolo puberulo subtereti 2–2.6 cm. longo; panicula ramosissima ampla pyramidata obscure pubescenti, bracteis minimis angustis, ramulis prope apicem solum capituliferis, pedicellis

filiformibus divergentibus 3 mm. longis; capitulis numerosissimis parvis 4 mm. longis ca. 14-floris; involucri campanulati squamis valde inaequalibus sub-3-seriatim imbricatis, extimis brevissimis parvis paucis lanceolatis subacutis puberulis, interioribus elliptico-oblongis obtusis vel rotundatis supra mediam partem pubescentibus 2.2 mm. longis, receptaculo leviter convexo paleaceo, paleis caducis linearibus obtusiusculis apice puberulis; corollis albis minute sparseque glandulosis 2 mm. longis, faucibus gradatim ampliatis tubo proprio vix longioribus, dentibus limbi ovato-deltaideis acutiusculis brevissimis recurvatis; antheris subtruncatis sed inter apicibus thecarum connectivo valde expanso evasculoso; acheniis brevibus deorsum angustatis in costis 5 sursum hispidulis, setis pappi ca. 15 albis sursum barbellatis 1.7 mm. longis. — In granitic soil, Sierra Madre in the State of Guerrero, Mexico, altitude 1200 m., 4 November, 1898, *E. Langlassé*, no. 565 (type, in hb. Gr.). This species shows in its anthers a transition to *Ophryosporus*. However, the modification of the upper part of the connective into an expanded transparent spongy cushion devoid of vascular tissue is clearly a rudimentary form of the terminal appendage. In the true species of *Ophryosporus*, on the other hand, no such rudiment is visible even under the compound microscope. Furthermore, the true *Ophryospori* have an involucre of nearly equal subuniseriate scales and a naked disk.

**Eupatorium Michelianum**, n. sp. Fruticosum 1.25 m. altum; ramulis teretibus gracilibus rectis foliosis fulvo-glanduloso-hirsutulis; foliis oppositis subsessilibus basi rotundatis vel cordatis subamplexicaulibus elongato-oblongis attenuatis argute serrulatis firmiusculis ad 13 cm. longis 3 cm. latis glabriusculis penninerviis utrinque reticulato-venulosis subtus pallidioribus aureo-atomiferis; paniculis terminalibus oppositifloris bracteatis rotundatis ca. 1 dm. diametro ca. 90-capitatis, pedicellis teretibus ca. 5 mm. longis; capitulis ca. 22 floris ovoideo-cylindricis 1 cm. longis; squamis involucri arcte adpressis multiseriatim imbricatis apice rotundatis erosio discoloribus, extimis brevissimis suborbicularibus, intimis anguste linearibus; corollis albis anguste tubulosis sursum vix ampliatis, limbo patente breviter 5-dentato; antheris apice longe appendiculatis; acheniis prismatis 5-costatis deorsum leviter angustatis 3.3 mm. longis in costis hispidulis. — In granitic soil of the Sierra Madre, Guerrero, Mexico, altitude 1200 m., 7 December, 1890, *E. Langlassé*, no. 589 (type, in hb. Gr.). This species is allied to *E. glaberrimum*, DC., but is glandular-hirsute. It is also near *E. Oerstedianum*, Benth., from which it differs in its hispidulous achenes and narrower involucre, the lowest scales being suborbicular and not at all herbaceous. It is dedicated to

the memory of the late Marc Micheli, at one time editor of the interesting *exsiccatae* of which it forms a part.

*EUPATORIASTRUM NELSONII*, Greenman, var. *cardiophyllum*, ROBINSON & GREENMAN, n. var. Habitu et floribus formae typicae; foliis suborbicularibus duplicato-dentatis basi valde cordatis. — Los Piños, Chiapas, Mexico, 2 June, 1904, *E. A. Goldman*, no. 1052 (type, in hb. U. S. Nat. Mus., tracing and fragments in hb. Gr.).

*KANIMIA NITIDA*, Bak. in Mart. Fl. Bras. vi. pt. 2, 370 (1876). In the Index Kewensis, ii. 3 (1895), Hooker, f. and Jackson reduce this species to *K. "erythralina,"* crediting the latter name to Bentham and Hooker, f. Gen. ii. 247 (1873). If the combination had been correctly made in the Genera Plantarum it would obviously antedate Baker's binomial and stand according to the rule of priority under the genus, but this is not technically the case. At the place indicated, Bentham and Hooker, f. merely refer to *Kanimia*, the plant which they call "*Mikania erythralina*, DC." The combination *Kanimia erythralina* is not made, and indeed there is no assurance that the authors of the Genera Plantarum regarded the transferred plant as a distinct species or that in naming it under *Kanimia* they would have adopted the combination *K. erythralina*. All that their statement conveys is the fact that the generic affinities of De Candolle's plant are with *Kanimia* rather than with *Mikania*. There is, however, an added reason why the transfer in the Genera Plantarum should not in this instance be regarded as equivalent to the creation of the new binomial *K. erythralina*, for De Candolle's specific name was *erithalina*, given from a fancied resemblance of the plant to *Erithalis*. *Kanimia nitida*, Baker, is not only the first correct combination accompanied by accurate synonymy, but happily it is also in accordance with the most rigid priority of the specific name, for it is founded on *Eupatorium nitidum*, DC. Prod. v. 180 (1836), which has priority of position over *Mikania erithalina*, DC.

*CARPHEPHORUS REVOLUTIFOLIUS*, DC. Prod. v. 133 (1836). This species, described by the eldest De Candolle, was based upon a specimen sent to him by Sternberg from the herbarium of Haenke and supposed to have been collected in Mexico. Concerning the plant Bentham and Hooker, f. (Gen. ii. 249) say "*C. revolutifolius*, DC. l. c. 133, e Mexico, et *C. cordifolius*, DC. Prod. vii. 267, e Brasília, nobis ignoti, certe e descr. e genere expellendi sunt." By Hemsley (Biol. Cent.-Am. Bot. ii. 108), *C. revolutifolius*, DC., is still included in the Mexican flora, but with the comment that both this and *C. ? triangularis*, Gray, are doubtful species. At the request of the writer, Mr. Casimir De Candolle has



been so kind as to lend for examination a bit of the original plant of Haenke from the Prodrômus Herbarium at Geneva, calling attention to the fact that Schultz Bipontinus had once seen the specimen, and recorded on the sheet his opinion that it was not Mexican, but was the Chilean *Pleocarpus revolutus*, Don. It appears that this supposition has never been put on record in print. It is, however, fully confirmed by an examination of the fragment sent by Mr. De Candolle. The plant is certainly not a *Carphephorus*, nor does it belong to the *Eupatorieae*. The corollas are distinctly bilabiate, and the achenes are not at all angled. It agrees very closely with Don's description of *Pleocarpus revolutus* and with Gay's admirable colored plate of the Chilean plant (Fl. Chil. t. 43). In the Gray Herbarium there is furthermore a specimen of *Pleocarpus revolutus* collected by Gay, and with this also the plant of Haenke is in close agreement, the only differences noted being a slightly greater pubescence on the pedicels and a tendency for the bracts of the involucre to be a little narrower, differences of degree only, and so slight that they may be confidently attributed to individual variation. The genus *Pleocarpus* has no floral distinctions from *Jungia*, with which it has been united by nearly all writers, who have had occasion to mention it in recent years. In accordance with this view, the plant in question should be called :

*Jungia revoluta*, n. comb. *Pleocarpus revolutus*, D. Don. Trans. Linn. Soc. xvi. 228 (1830); Remy in Gay, Fl. Chil. iii. 427, t. 43. *Carphephorus revolutifolius*, DC. Prod. v. 133 (1836). Of the same habitually divergent section of *Jungia* is also

*J. dentata*, n. comb., *Pleocarpus dentatus*, Phil. Linnaea, xxxiii. 51 (1864).

It is well known that confusion has existed in the collections of Haenke and Née, whose plants came partly from western South America and partly from Mexico. It is, therefore, a matter of no surprise that the problematic *Carphephorus revolutifolius*, which many acute and diligent collectors in Mexico have never succeeded in rediscovering, should be found identical with a plant from Chili, whence without doubt the plant of Haenke originally came. The species should, therefore, be eliminated both from the Mexican flora and from the genus *Carphephorus*.